

Laurels for Giving the Internet Its Language

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Published: February 16, 2005

SAN FRANCISCO, Feb. 15 - Late in the summer of 1973, two young scientists in the nascent field of computer networks hunkered down in a conference room of the Cabana Hyatt Hotel in Palo Alto, Calif., a clean but bland stopping place for salesmen and the parents of students at nearby Stanford University. Their goal was to thrash out a way to make different, isolated computer networks talk to each other.

They wrote, they sketched, they argued, all the while passing a yellow legal pad back and forth to capture ideas as they crystallized.

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When they emerged two days later, they knew they had the makings of a solid technical paper. What they did not know was that they had created the essential underpinnings of today's vast and sprawling Internet.

For the work that began on that yellow pad, the Association for Computing Machinery plans to announce Wednesday that Vinton G. Cerf and Robert E. Kahn will receive the 2004 A. M. Turing Award, widely considered to be the computing field's equivalent of the Nobel Prize.

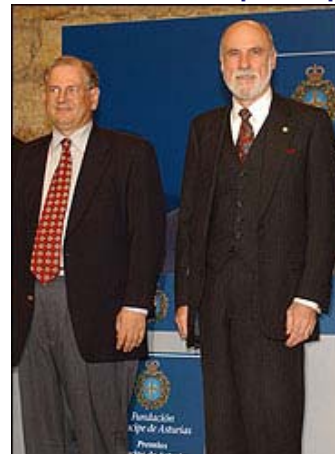
Nearly a billion people have come to rely on the Internet as they do on a light switch. Very few know how it works, to say nothing of how it got here. A 10-year-old might think [Google](#), [Microsoft](#) or perhaps Al Gore invented the Internet.

In honoring Dr. Kahn and Dr. Cerf, the computing association validates one view in the highest ranks of computer science that their work made the Internet possible. It also revives the public spats in the small community of Internet founding fathers over who should be considered the Edison of this age.

"A lot of people are responsible for the success of the Internet," said David Patterson, a professor of computer science at the University of California, Berkeley, who is president of the association. "Vint and Bob are responsible for the vocabulary of the Internet."

With that first generation of pioneers now graying, researchers and archivists are pondering the birth of the Internet in historic terms. That old yellow pad, if it had not been lost decades ago, would be a valuable collector's item now.

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Robert E. Kahn, left, is seen as more intense than his counterpart. Vinton G. Cerf is known for his good-natured pragmatism.

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In fact, a first edition of the technical journal in which the Cerf-Kahn paper, "A Protocol for Packet Network Interconnection," appeared is being auctioned at Christie's next Wednesday as part of a larger sale of computer-science papers being sold by a collector in Novato, Calif. The journal is expected to sell for \$2,000 to \$3,000.



In that early brainstorming session, Dr. Kahn, 66, and Dr. Cerf, 61, who are known in the computing field for their Watson-and-Crick-like teamwork, created the structure for Transmission Control Protocol and Internet Protocol, or TCP/IP, a set of communications standards that enable different computer networks to share information, giving the Internet its power and reach.

Dr. Patterson said his association was careful to word the award citation so that it was clear that Dr. Cerf, now senior vice president of technology strategy at [MCI](#), and Dr. Kahn, chief executive of the Corporation for National Research Initiatives, a nonprofit research and development organization in Reston, Va., were being honored for their work on the Internet protocol, not the Internet as a whole, so as not to rile other claimants to the Internet's creation. Still, this is the first time in the 39-year history of the award that it has been conferred for work in computer networking - the key to enabling global data communications.

For computers to exchange digital data like Web pages, e-mail and digital movies, they have to agree on a method for communicating with each other. The Kahn-Cerf Transmission Control Protocol defines a standard way to package chunks of data into "datagrams," for sending across the network.

The Internet Protocol provides a standard way of putting those datagrams into envelopes addressed to any computer in the world. Like postal sorters, the computers along the way can look at the addresses on the envelopes to relay them to their destinations without needing to look inside the envelopes.

No one disputes that Dr. Kahn and Dr. Cerf created the original protocol, but factions in computer science point to different inventions as being most vital to the Internet's existence.

Most notably, for the last 10 years, Leonard Kleinrock, a computer scientist at the University of California, Los Angeles, has been laying claim to having invented packet switching, the general method of splitting up a message into digital packets, routing the packets individually and reassembling the message on the other end.

Until Dr. Kleinrock began making his case prominently, two others, Paul Baran and Donald W. Davies, had been widely recognized as packet switching's inventors. Dr. Davies died in 2000.

In recent years, Lawrence G. Roberts, who in the late 1960's designed the Arpanet, a precursor of the Internet, has been a supporter of Dr. Kleinrock's claim.

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